

Claims

1. Method for improved power transmission controlling in duplex time division cellular systems supporting multislot services, comprising
 - 5 - obtaining a common target signal quality level; and
 - obtaining individual service quality levels each relating to one of several individual time slots; wherein said individual time slots are assigned to one composite transport channel for a data stream resulting from combining of one or several transport channels; characterized by
 - 10 - determining individual target signal quality offset levels each relating to one of said individual time slots on the basis of said individual service quality levels; and
 - determining individual target signal quality levels each relating to one of said individual time slots on the basis of said common target signal quality levels and said individual target signal quality offset levels such that transmission power controlling is obtainable,
15 which is adapted to specific interference conditions of each one of said individual time slots.
2. Method according to claim 1, comprising
 - 20 - determining said individual target signal quality offset levels by mapping said individual service quality levels from a service quantity scale to a signal quantity scale.
3. Method according to claim 1 or claim 2, comprising
 - 25 - mapping a difference between said individual service quality levels and a combined individual service quality level for determining said individual target signal quality offset levels.
4. Method according to anyone of the preceding claims, wherein said combined individual service quality level is a function of said individual service quality levels.
- 30 5. Method according to anyone of the preceding claims, wherein said individual service quality levels are bit error ratios.
6. Method according to anyone of the preceding claims, wherein said common target signal quality level is adjusted in accordance with a common target service quality level and a
35 common measured service quality level being determined from said data transmitted on said composite transport channel.

7. Method according to anyone of the preceding claims, wherein said common target signal quality level is obtainable from an outer loop power control mechanism.
8. Method according to anyone of the preceding claims, wherein said common target signal quality level is a common target signal to interference ratio.
9. Method according to anyone of the preceding claims, said transmission power controlling is capable for issuing transmission power control commands for each time slot, wherein said transmission power controlling is applicable for data communications in uplink and/or downlink direction.
10. Method according to anyone of the preceding claims, wherein said composite transport channel is a coded composite transport channel.
11. Method according to anyone of the preceding claims, wherein said time division duplex cellular system is a wideband code division multiple access - time division duplex (WCDMA-TDD) system and particularly a time division synchronous code division multiple access (TD-SCDMA) system.
12. Computer program product for executing a method for improved transmission power controlling in duplex time division cellular systems supporting multislot services, comprising program code sections for carrying out the steps of anyone of claims 1 to 11, when said program is run on a computer, a terminal, a network device, a mobile terminal or a mobile communication enabled terminal.
13. Computer program product for executing a method for improved transmission power controlling in duplex time division cellular systems supporting multislot services, comprising program code sections stored on a machine-readable medium for carrying out the steps of anyone of claims 1 to 11, when said program product is run on a computer, a terminal, a network device, a mobile terminal, or a mobile communication enabled terminal.
14. Computer data signal embodied in a carrier wave and representing instructions, which when executed by a processor cause the steps of anyone of claims 1 to 11 to be carried out.
15. Transmission power controller for time division duplex cellular systems supporting multislot services, comprising at least
 - means for obtaining a common target signal quality level; and

- means for obtaining individual service quality levels each relating to one of several individual time slots; wherein said individual time slots are assigned to one composite transport channel for a data stream resulting from combining of one or several transport channels,
5 characterized by
 - means for determining individual target signal quality offset levels each relating to one of said individual time slots on the basis of said individual service quality levels; and
 - means for determining individual target signal quality levels each relating to one of said individual time slots on the basis of said common target signal quality level and said
10 individual target signal quality offset levels such that said transmission power controller is able specifically adapt transmission power to individual interference conditions of each one of said individual time slots.
- 16. Transmission power controller according to claim 15, wherein said means for determining
15 individual target signal quality offset levels comprises
 - means for mapping said individual service quality levels from a service quantity scale to a signal quantity scale.
- 17. Transmission power controller according to claim 15 or claim 16, comprising
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 - means for mapping a difference between said individual service quality levels and a combined individual service quality level for determining said individual target signal quality offset levels.
- 18. Transmission power controller according to anyone of the claims 15 to 17, comprising
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 - means for adjusting said common target signal quality level in accordance with a common target service quality level and a common measured service quality level being determined from said data transmitted on said composite transport channel
- 19. Transmission power controller according to anyone of the claims 15 to 18, wherein said
30 individual service quality levels are bit error ratios.
- 20. Transmission power controller according to anyone of the claims 15 to 19, wherein said common target signal quality level is a common target signal to interference ratio.
- 35 21. Transmission power controller according to anyone of the claims 15 to 20, comprising
 - outer loop power control mechanism from which said common target signal quality level is obtainable.

22. Transmission power controller according to anyone of the claims 15 to 21, wherein said transmission power controller is provided for wideband code division multiple access - time division duplex (WCDMA-TDD) systems and particularly for time division synchronous code division multiple access (TD-SCDMA) systems.
23. Cellular terminal capable to operate in a cellular time division duplex system supporting multislots services, comprising at least a transmission power controller for adjusting transmission power control of downlink data transmissions, wherein said transmission power controller is a transmission power controller according to anyone of the claims 15 to 22.
24. Base station for cellular time division duplex system supporting multislots services, comprising at least a transmission power controller for adjusting transmission power control of uplink data transmissions, wherein said transmission power controller is a transmission power controller according to anyone of the claims 15 to 22.
25. Radio access network system of a cellular time division duplex system supporting multislots services, wherein said radio access network system comprises at least one base station and at least one radio network controller, wherein said radio access network system comprises additionally a transmission power controller for adjusting transmission power control of uplink data transmissions, wherein said transmission power controller is a transmission power controller according to anyone of the claims 15 to 22.